

numerous references render the volume of still greater value, and make it one that no naturalist who is interested in the Birds of Europe should omit to consult.

NOTES

ON July 5 the Sub-Wealden boring had reached the depth of 1,400 feet, and it is expected that this week it will have reached 1,500 feet. But this will have quite exhausted the funds of the Committee, and Mr. Henry Willett appeals for more subscriptions. "It cannot be too widely known," he states, "that unless 2,000 feet be reached, the solution of the problem is as far off as ever. We have met with nothing to show that Palæozoic rocks, as anticipated, may not lie at the estimated depth." We are inclined to think that Mr. Willett is too desponding in thinking that failure "seems to be imminent" from want of funds. We are sure there are many wealthy men, who, if the importance of the undertaking were properly represented to them, would come to the rescue and advance the trifling sum necessary for the completion of the experiment.

ON Saturday last, Sir George B. Airy, the Astronomer Royal, was entertained at the Mansion House on the occasion of the freedom of the City having been voted to him. A considerable number of well-known scientific and other gentlemen were present.

THE Royal Commission on Vivisection held their first regular meeting on Monday. The offices of the Commission are at 13, Delahay Street, Westminster.

IN connection with the recent volcanic eruptions in Iceland, which have caused great loss and much suffering to the inhabitants, the *Times* publishes the following abstract of a report by the Very Rev. Dean Sigurd Gunnarsson, dated Hallormsstad, in Múlasýsla, April 24, 1875:—"On Easter Monday, early in the morning, loud rumbling noises were heard to the westward, and apparently travelled towards the north-east, in the direction of the mountain ranges bounding the valley of Fljótsdalshérað to the north. Presently the sounds turned backward along the southern mountains as well. The air was heavy and jet black towards the north and north-east. About nine o'clock whitish-grey scoriaceous sand began to fall from the sky, the particles averaging the size of a grain, but in shape longer. The dark column moved on nearer and nearer, and the darkness rapidly increased, while the scoriaceous hail thickened at the same rate. A full hour before noon candles had to be lighted in the houses, and at noon the darkness was as dense as that of a windowless house; even abroad the fingers of the hand could not be distinguished at the distance of a few inches from the eye. This pitch darkness lasted for about an hour. During the dark all glass windows appeared like mirrors to those inside, reflecting the objects on which the light fell as if they had been covered outside with a coat of quicksilver. For four consecutive hours it was necessary to have lighted candles in the houses. During all that time the ashes and the sand were falling thick and fast. Lightning and claps of thunder were at the same time seen and heard in rapid succession, and the earth and everything seemed to tremble again. The air was charged with electricity to such an extent that pinnacles, and staff-pikes of iron when turned into the air, and even one's hands when held up, seemed all ablaze. But the thunder differed from ordinary claps in this, that it travelled in rapidly-repeated echoes across the skies. When the darkness wore off the fall of the ashes abated. The dark column now moved inland towards the upper valleys; but, being there met by a counter current of air, it remained at first stationary for a while, and afterwards moved slowly down country again along the valleys, so that once more the daylight was changed into dusk, which was accompanied by the fall of fine ashes. After

the fall the earth was covered with a layer of ashes and scoriae from $1\frac{1}{2}$ inches to 8 inches deep; coarsest where it lay thickest, in many cases exhibiting pumice boulders twice as large as the fist. In these places the ashes fell hot as embers on the ground. At first the fall of the ashes was accompanied by a foul sulphurous stink, which, however, very soon vanished. When the ashes had any perceptible taste it was that of salt and iron. For three days after the fall still weather prevailed, and the ashes lay undisturbed on the earth. Before the fall of the ashes the land was snowless and pasture plentiful; but after it not a creature could be let out of doors, and the sheep, if they were let out, would run as if mad in all directions. On the fourth day a pretty stiff south-west gale blew the ashes away from the hillocks and mounds, except the finest part, which remained on the sward, presenting the appearance of a compact scurf. But what little good this gale might have done was undone the next day by a wind blowing from north-west."

THE *New York Tribune* publishes additional information respecting the disastrous earthquake in South America. The locality where the earthquake occurred is the great coffee district of South America. The region affected by the shocks covers five degrees of latitude, and is 500 miles wide. The shock extended in a north-east direction along the northern range of the Andes. It was felt first very perceptibly at Bogota, the capital of New Granada, thence seemed to travel north, gathering intensity as it advanced, until it reached the south-east boundary line of Magdalena, where the work of destruction began, continuing as it advanced along the eastern boundary of Magdalena, following the line of the mountain range, and destroying in part or whole the cities of Cucuta, San Antonio, El Bosario, Salazar, San Cristobal, San Cayetano, and Santiago. The first premonition of the terrible visitation occurred on the night of May 17, when a strange rumbling sound was heard beneath the ground, although no earthquake occurred. It travelled in the direction afterwards taken by the earthquake, and lasted only a few minutes. On the morning of May 18 a terrible shock occurred. It suddenly shook down the walls of houses, tumbled down churches and the principal buildings, burying the citizens of the place in the ruins. Another shock completed the work of desolation. Three more shocks followed of equal intensity, but there appears to be no evidence that there were any openings in the earth, which on similar occasions have engulfed buildings and inhabitants, at least not in Cucuta. The shocks, with lesser force, however, seem to have been felt throughout the whole region of the earthquake for two days afterwards, extending to Cartagena and the western sea-coast. To add to the horror of the calamity, the Lobotera Volcano suddenly began to shoot out lava in immense quantities, or, as a correspondent writes, "it sent out a mass of molten lava in the form of incandescent balls of fire into the city."

DETAILS concerning Mr. Giles's exploration of the country lying about 100 miles from the coast-line of the great Australian Bight have come to hand (see vol. xii. p. 135). The country he examined seems almost useless for pastoral purposes, the greater part of it being dense scrub, "heavy red sand-hills with thick mallee, mulga, acacia, Grevilles, casuaxina, hakea, and spinifex." For 200 miles the greatest suffering was endured from the want of water, the horses all dying, and the party only being saved by the camels; Mr. Giles speaks of the latter as "wonderful, awe-inspiring, and marvellous creatures." He just touched the edge of Lake Torrens, and from what he has seen he judges that there exists a vast desert of scrub of a triangular form, the base of which is at or near the western shores of the lake, and the sides running north-westerly from the southern foot, and most probably west from the northern cone to an apex at no great distance from his starting-point, Youldeh. It consists of two

deserts divided by a strip of open country about thirty miles broad; the western one Mr. Giles has named Richards' Desert, and the eastern one Ross's Desert. His starting-point was Youldeh, 135 miles N.N.W. from Fowler's Bay. At Pyleburg, sixty-four miles from this, is an extraordinary native dam, and a clay tank, with circular wall five feet high around it, the work of the aborigines. Mr. Giles is confident of being able to cross to the settled district of Western Australia.

ADVICES from New Zealand represent the last shipment of salmon ova from Glasgow to that country as having arrived in a worthless state. The total length of time during which the eggs were packed on board ship was 121 days, or only nine days longer than the period during which it has already been proved by Mr. Buckland and Mr. Youl that the development of salmon may be safely retarded by ice. A large quantity of the ice remained till the end of the voyage, so that the temperature of the ice-houses must have been kept very low throughout the voyage. In fact it is said that the *exterior* of the packing never exceeded 43° Fahr. The officers of the Otago Acclimatisation Society state that microscopic examination proved that many of the eggs were unfertilised: but this was not the case with all; and it is hardly to be supposed that so experienced a pisciculturist as Mr. Buckland, who had charge of the operations of collecting and packing the eggs, could have improperly performed so important a duty. It is more than probable that of the large number of ova sent, many were handled by incompetent assistants. But this theory will not explain the want of vitality in the impregnated eggs, especially when the conditions for their safe transit were so favourable. The cases in which they were packed are described as "sodden," so that they did not suffer from dryness. It is probable, therefore, that want of ventilation was the cause of the failure of the experiment. It will be interesting to receive more detailed information from New Zealand, as our present advices hardly enable us to judge accurately of the state of the whole consignment.

AT the time of his death Dr. J. E. Gray had compiled a list of the books, memoirs, and miscellaneous papers of which, during his lengthy life, he had been the author. This Mr. J. Saunders has completed and seen through the press, a fitting last service to his illustrious chief. The total number is 1,162.

THERE is no professional branch of practice which is so much in need of elevation as the veterinary. On this account we feel particular pleasure in noticing the commencing number of a new monthly journal, the *Veterinary Journal*, conducted by Mr. George Flemming, of the Royal Engineers, whose valuable Manual of Veterinary Science and Police, as well as his other contributions to veterinary science, make it certain that the undertaking will not be found lacking in enterprise and the outspoken criticism of existing abuses. Messrs. Baillière, Tindall, and Cox are the publishers.

THE third part of the eleventh volume of the Transactions of the Zoological Society consists of a monograph by Prof. Owen on *Cnemiornis calcitrans*, the huge extinct Lamellirostral bird of New Zealand. We omitted to mention in connection with the preceding part of the same work that the monograph on the Birds of the Philippine Islands is by Lord Walden, President of the Zoological Society.

THE subscription for the families of the unfortunate aéronauts, Sivel and Crocé-Spinelli, has reached 3,200/. A monument will be erected by means of a special fund. The two aéronauts will be represented sleeping, wrapped in a large mantle, and the statue will be executed in marble, life size.

A VERY valuable publication is the "Seventh Annual Report on the Noxious, Beneficial, and other Insects of the State of

Missouri," made to the State Board of Agriculture by Mr. Charles V. Riley, State Entomologist. It argues considerable enlightenment on the part of the Government of Missouri that they keep a State Entomologist, though Mr. Riley complains that his work is much hindered from want of sufficient funds. The necessity for such an official in Missouri is proved by the fact that a single insect, the Chinch Bug, filches nineteen million dollars from the pockets of the farmers in a single year, and reduces by so much the wealth of the State. "Yet, though the sum demonstrably amounts to millions," Mr. Riley states, "many of our legislators and some of our journalists would laugh at me were I to ask for an appropriation of five or ten thousand dollars to be expended in experiments which might result in giving us a perfect, or at least a much better remedy for the evil than any now in our possession, and thus save the whole or the larger part of this immense annual loss." In cases, as with the Locust, the Chinch Bug, the Cotton Worm, &c., where the evils are of a national character, Mr. Riley rightly advocates the appointment of a National Commission for the express purpose of their investigation, and consisting of competent entomologists, botanists, and chemists; and we are glad to learn that preliminary steps have been taken by some of the leading scientific men in the United States to memorialise Congress to create such a Commission, the members to be chosen by the Council of the National Academy of Science, and approved by the Secretary to the Treasury. The present Report is wholly occupied with the following noxious insects:—The Colorado Potato-Beetle, the Chinch Bug, the Flat-headed Apple-tree Borer, Canker-worms, the Grape Phylloxera, and the Rocky Mountain Locust.

THE U.S. Smithsonian Institution has lately undertaken an exploration which promises very important results in the interest of American archaeology. It is well known that on some of the islands off the south coast of California there have been found some extremely interesting remains of prehistoric occupation on the part of the aboriginal tribes of the country, these consisting of stone implements in great variety, soap-stone bowls, bone and shell ornaments, &c., forming a valuable collection already obtained for the National Museum. With a view of exhausting the locality and securing whatever may still remain of interest, the services of Mr. Paul Schumacher, who had previously explored the region, have been secured by the Smithsonian Institution, and he left San Francisco early in May, with four labourers, for the scene of action. The U.S. Treasury Department gave him transportation on the revenue steamer *Rush*, and the War Department supplied tents and camp equipage. It is expected that this investigation will occupy several months, and that the results will be almost as interesting in their relations to American archaeology as those of Di Cesnola in Cyprus, and of Schliemann in Troy, to that of the Old World. The special object of this investigation is the furnishing of material for the grand display to be made at the Centennial by the combined efforts of the Smithsonian Institution and the Indian Bureau.

THE Eighth Annual Report of the Trustees of Cambridge, U.S., Peabody Museum of American Archaeology and Ethnology contains a memoir of Jeffries Wyman, the late Curator, to whom Mr. F. W. Putnam has succeeded. The Report contains besides some account of the additions made to the Museum since last Report, which are extensive and valuable. One of the principal additions is a collection of earthen dishes and vases, a number of bone and stone implements and miscellaneous articles from mounds near New Madrid, Missouri, and several stone implements from various localities in that State, collected by Prof. G. C. Swallow. This is a very important collection, particularly rich in articles of pottery and stone of the mound-builders. The Report contains a pretty full account of these with many illustrations, especially of articles of pottery of very varied and remarkable shapes. The mounds from which

they were taken appear very ancient ; soil has formed on them to the depth of three feet, and the largest trees grow on them and the connected embankments or levees. Another large collection, by Mr. F. W. Putnam, comes from fortifications, caves, and mounds in Indiana and Kentucky, and consist of implements, weapons, pottery, sandals, bark-cloth, crania, &c.

MR. F. CLOWES, B.Sc., has been appointed Natural Science Master in the recently-established Middle Class Public School at Newcastle-under-Lyne. Mr. Clowes is the author of a work on Practical Analysis, and is well known as a sound and accurate chemist.

PROF. C. F. HARTT, of Cornell, U.S., has been appointed, with Major Continho, a Brazilian, to take charge of the Geological Survey of Brazil.

IT is estimated that 10,000,000 acres of land in Algeria are covered with a spontaneous growth of the Alpha plant. The exportation of this fibre for paper-making has increased very rapidly during the past five or six years. In 1866 it amounted to 4,000 tons, in 1870 it rose to 32,000 tons, and in 1873 to 45,000 tons, while the past year's produce was expected to reach 60,000 tons. The average price at Oran is about 140 francs per ton.

A VERY fine specimen of the singular rubiaceous epiphyte *Hydnophytum formicarium* has recently been received at the Kew Museum. This specimen measures some thirteen inches through, and was accompanied by some of the ants which make their nests in the fleshy tubers of the plant. These ants were very lively when received, and prove to be the *Camponotus irritans* of Smith.

PROF. BRADLEY, of Knoxville, Tennessee, has recently published the results of his geological labours among the Southern Appalachians, and they throw much light upon the probable age of the crystalline rocks of that region. It has long been the tendency of geologists to regard the metamorphic crystalline rocks of the Atlantic coast as certainly pre-Silurian. This has, however, been called in question by the observations of Prof. Dana, which go to prove that the limestones and accompanying schists and quartzites of Western New England are all Silurian, and not Huronian or Laurentian. Prof. Bradley now claims the same for the region he has investigated, that is, the western portion of North Carolina, the eastern part of Tennessee, and much of Georgia and Alabama. The evidence upon which the conclusion is based is stratigraphical, and must be studied in detail to be fully understood. The time at which the uplift and metamorphism of this region took place is considered by Prof. Bradley to have been post-carboniferous, and it is probably referable to the close of the palaeozoic.

A VERY interesting and important addition to the ethnological branch of the National Museum at Washington, U.S., has lately been made in the form of a large collection of objects of stone from Porto Rico. This was gathered from the ancient graves of the island during a period of many years by Mr. George Latimer, an American citizen residing in that place. The most noticeable features in the series consist of about fifty oval stone rings of much the size and shape of horse-collars, all variously carved and ornamented. There are also many statuettes, carved heads, triangular stones with faces of animals carved at either end, some pottery, and numerous axes and chisels—some of exquisite beauty, and polished to the highest degree. Many of them are of the green jade so much sought after by archaeologists.

MR. ELLIOT STOCK sends us an essay by Mr. T. K. Callard, F.G.S., on "The Geological Evidences of the Antiquity of Man reconsidered ;" being an attempt to show that man's antiquity is not so great as some eminent geologists make it to be,

and that "man's advent was accompanied by the introduction of a vast number of fresh forms both in the vegetable and animal life, and that this took place soon after a great devastation of the former flora and fauna, which devastation was accompanied by ice and water."

THE *Electric News and Telegraphic Reporter* is the title of a new journal, edited by Mr. W. Crookes, F.R.S., to be published every Thursday. We wish it success.

THE sturgeon fisheries of Schleswig Holstein yielded 1,917 fish during 1874, of which 1,355 were caught in the Elbe, and 562 in the Eider. In 1873 the total was 2,174.

M. A. LANCASTER, of the Brussels Observatory, sends us a paper, reprinted from the *Bulletin* of the Belgian Academy, on the remarkable dryness of the months of February, March, and April of this year.

MR. ELLERY'S "Monthly Record of Results of Observations in Meteorology, Terrestrial Magnetism," &c., at Melbourne Observatory, for September and October 1874, are to hand.

THE latest additions to the Manchester Aquarium include twelve Octopus (*Octopus vulgaris*) from the Channel Islands ; seven King, or Horse-Shoe Crabs (*Limulus polyphemus*) from North America ; twelve Large Spider Crabs (*Maia squinado*) from Devonshire ; two Lettered Terrapins (*Emys scripta*) from New Orleans ; two Salt-water Terrapins (*Malachlemys concentrica*) from Mexico ; one Horned Toad or Crowned Tapaxaxin (*Phrynosoma cornutum*) from Mexico ; one Alligator (*Alligator mississippiensis*) three feet long.

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus*) from India, presented by Lord Lindsay ; a Sloth Bear (*Melursus labiatus*) from India, presented by Mr. Richard A. Roberts ; three American Red Foxes (*Canis fulvus*) from N. America, presented by Mr. Edward Darke ; a Peregrine Falcon (*Falco peregrinus*), European, presented by Mr. H. J. Watson ; a Water Viper (*Cenchris piscivorus*) from N. America, presented by Mr. J. F. Painter ; a Gambian Goshawk (*Astur tibialis*) from W. Africa, purchased ; three Indian Adjutants (*Leptoptilus argala*), two Pondicherry Vultures (*Vultur calvus*), seven Indian Cobras (*Naia tripudians*) from India, deposited ; six Trumpeter Swans (*Cygnus buccinator*), a Common Fallow Deer (*Dama vulgaris*) born in the Gardens.

OUR BOTANICAL COLUMN

THE POTATO DISEASE.—It will be remembered by those of our readers interested in the potato disease, that Lord Cathcart offered a prize in 1873 for the best essay on the "Potato Disease and its Prevention ;" and it will also be fresh in their memories that of the ninety-four essays sent in, not one was considered by the judges to deserve the prize. This circumstance, and Prof. Dyer's summary of the history of what was known of the disease, delivered before the Horticultural Society last year, gave rise to some correspondence in this and other journals. Few subjects, probably, have been so fertile a source of wild theories and speculations. Mr. Eccles Haigh, one of the competitors for Lord Cathcart's prize, now comes before the public on his own responsibility, with a theory which at least has the merit of ingenuity, and is based upon a cleverly worked out idea. But it seems to us that the writer has taken up a wholly untenable position. In a pamphlet of forty-four pages, small octavo, the writer traces the causes not only of the murrain, in which *Peronospora infestans* is so destructive, but also of the "curl," a disease very prevalent just before the appearance of the present scourge ; and, to his own satisfaction, explains how these diseases are to be prevented. To be brief, gardeners are credited with having induced by their mode of cultivation the "curl," and afterwards, in getting rid of that, brought on the present far more formidable scourge. Mr. Haigh endeavours to show that during the "curl"